Washington State On-Site Wastewater Technical Review Committee

Final Minutes for the April 22, 2004 Meeting

Approved on June 24, 2004 by Vote of the Committee

Washington State Department of
Health

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MEETING ATTENDEES

Members Present

Kevin Barry, Klickitat Co. Health Dept
John Stormon, WA Dept of Ecology
Keith Grellner, Kitsap Co. Health Dept
Scott Jones, Scott Jones & Assoc
Eric Knopf, Indigo Design, Inc.
Bill Peacock, Spokane Sewer Utility District

Members Absent

Pam Denton, Mason Co. Health Dept

Administrative note:

Glenn Herriman, Century 21/Herimann Speedy Tank Svc, the Real Estate/Building Industry representative, resigned from the TRC in February due to business conflicts that precluded his ability to attend TRC meetings.

Guests Who Signed In

David Allan,
Joe Bush, Norweco
Sam Carter, Orenco Systems, Inc.
Rick Dawson, Benton-Franklin Health District
Ed Hunter, Advanced Drainage Systems
Blake Johnston, Infiltrator Systems, Inc.
Peter Lombardi, Orenco Systems Inc.
Alex Mauck, EZFlow
Jim Patterson, Five Star Enviro
Tom Rogers, Northwest Cascade
Al Schnitkey, EZFlow
Tom Teal, Glendon BioFilters
Jim Wiley, Hancor

DOH Staff

Mark Soltman, Wastewater Program Supervisor
Kelly Cooper, DOH Rule Writer
John Eliasson, Wastewater Program Staff
Laura White, Wastewater Program Staff
Jim VanDerslice, DOH Epidemiologist
Dave Lenning, Temporary DOH staff

INTRODUCTION:

Chairman Kevin Barry called the one-day meeting to order at approximately 8:15 AM on April 22, 2004 in the conference room of the BEST Inn, Ellensburg, Washington. The meeting began with brief introductions by each committee member

PLANNING/ADMINISTRATIVE ISSUES:

Approval of February 18, 2004 TRC Meeting Minutes:
With the noted amendments on page 4 by Keith Grellner, the minutes were APPROVED, as amended, by a vote of 6 in favor, none opposed.

Future Scheduled Meetings:
The next meeting date was set for June 9-10, 2004, though there was some discussion of either changing the dates due to potential conflicts and/or meeting for only one day. DOH staff will contact committee members and look at the technical issues to be discussed prior to making the final decision on the next meeting. The meeting will tentatively be held at the BEST Inn in Ellensburg unless there is a conflict with the availability of the facility.

Mark Soltman handed out a memorandum addressed to TRC members, TRC interested parties, and Local Health Jurisdictions. The memorandum announced that due to the increasing staff commitments to regulation revision processes, the June 2004 meeting will be the last committee meeting for one year.

Glendon BioFilters experimental system protocol for the Model M32 was on the initial agenda but was removed due to lack of agreement on a proposed testing protocol. See copy of e-mail from Mark Soltman to Tom Teal dated April 15, 2004.

SUMMARY OF TECHNICAL DISCUSSIONS

Field Assessment Threshold Values - Field Assessment vs. Product Testing: The Statistical Differences – Dr. Jim VanDerslice, DOH

Dr. VanDerslice discussed the technical topic (Field Assessment vs. Product Testing) with the aid of a PowerPoint Presentation. He initially asked questions and discussed the differences between field assessment of individual systems and product testing of proprietary models; e.g.: Is a specific system performing poorly and in need of maintenance? Is a specific model performing adequately? The second question pertains more to compliance, whether NSF standards are being met in the field.

He discussed the NSF Standard 40 process. The set up and sampling methodology are designed for a consistent influent quantity and quality. This standard requires composite sampling leading to 30-day averages. Thus, it's a measure of long-term performance. If we're going to use this for field-testing, we must then deal with long-term averages.

When conducting a typical field assessment, there is variable quantity and quality. A grab sample is being taken, which is about $1/1000^{th}$ of taking composite samples over a 30-day period.

Dr. VanDerslice talked about the use of field sampling to assess compliance with NSF Standard 40.

- Different models of ATUs have different influents. This results in biased results. The solution is to randomly assign models to homes. At least 30 homes per model are needed. This is not practical.
- Grab samples are a poor measure of long-term average performance. The solution is to take lots of samples, which is not practical from a cost perspective.
- If samples are taken during the daytime on weekdays, the sampling results are not representative since no samples are taken on weekends and at night. The solution is to take samples at randomly selected times throughout the day and week or use composite samplers, neither of which are practical for field-testing.
- None of this is practical. Perhaps it's impossible. A methodology that assures a level playing field and long-term averages is needed.

What can available data tell us? Influent is likely different for different models. The results reflect the effects of inadequate maintenance. Grab samples aren't representative. Even large numbers of samples won't give a estimate of the true mean (estimate of long-term performance)

Why do we need to have an adequate product testing program? We need to have a level playing field that: uses the same effluent (effluent quality is the measure of performance), produces performance under a steady state, and includes some stress testing. It must provide a good measure of long-term performance and consistent results, while being cost-effective.

He then asked if product testing of different models is adequate for our needs? Does it measure whether ground or surface water quality is being impacted? Are the current costs of testing excessive or reasonable? Is the current system broken?

He concluded talking about field-testing of individual systems. The most that can be expected is an answer to: Is this system performing poorly? Problems exist with this type of testing: What is performance compared to? (Baseline data is needed.) There is the same problem with grab sampling at times of convenience instead of randomly at all times. Effluent quality is much more variable than other characteristics that can be observed. Finally, sampling might be able to help troubleshoot problems already identified, but don't tell us how well the system is truly performing.

Discussion occurred throughout the presentation. Some of the points of discussion or questions included:

- Are we getting the benefit when requiring more costly and sophisticated technologies for more sensitive sites?
- When evaluating a number of systems, the numbers can help one understand whether a system is functioning as well as it can.
- Rarely are the numbers of treatment standard 2 met in the field.

Field Assessment Threshold Values - Critical Point Monitoring: Development of a monitoring guidance document – John Eliasson, DOH

John handed out a draft of a proposed RS&G for "Onsite Sewage System Monitoring" and used a PowerPoint presentation to provide more information and an example using the critical point monitoring (CPM) process to develop and implement an onsite sewage system monitoring plan. He started by summarizing the findings of several onsite sewage system field assessment articles that concluded effective management (O&M) is important for ensuring system performance. Two of the articles (Converse and Wallace/Loudon) are included in the ATU discussion reference materials. Copies of these

two articles were provided to committee members and the audience Also, surrogate field parameters provide good indicators of effluent quality and system operation, and can be used to effectively monitor system performance in lieu of conducting wastewater sampling for laboratory analysis. .

He then went through the example of an onsite sewage system, consisting of an ATU, UV disinfection, and a gravelless drainfield showing how the seven steps of CPM could be applied to onsite sewage systems.

Mark Soltman reminded the committee about the issues raised by the Rule Development Committee (RDC):

- Is there a number or data set to determine compliance with NSF Standard 40? No.
- Is there a practical field threshold value process available to properly field test individual systems? No.
- What can we do with regard to diagnostics and function when things go wrong?
- What might be done that is both practical and reasonable?

Kevin Barry indicated the legislative process might give us more direction. Maybe we should minimize our efforts until we know what they might do or suggest.

Keith Grellner asked if we are attempting to assure health protection based solely on a product being initially tested to meet a standard? He did not believe this was sufficient.

Aerobic Treatment Unit RS&G: Positive Filtration – Laura White, DOH

Laura White provided a handout that summarized the history, questions, and her findings about providing positive filtration for ATUs. Copies of two articles were available to committee membership and others. She summarized the findings of several research projects/studies.

Laura quickly reviewed the 12 questions and answers she found. We all agree that bulking and sloughing do and will occur. The results of this on system performance, including downstream infiltrative surfaces in drainfields or treatment components, have not been conclusively shown. Studies indicated that sloughing occurred even in systems that had positive filtration.

David Allan reviewed the history of positive filtration requirements in past Washington State guidance documents, including his perspective of why the requirement was removed in the 1990s. He relinquished time to Joe Bush from Norweco who gave a PowerPoint presentation that described the benefits of flow equalization and filtration. Copies of the presentation were handed out to committee members.

Discussion and questions included the following:

- Kevin Barry indicated that the TRC will probably have to look at some filtration document, as part of the septic tank outlet filter discussion, in the near future. He recommended further discussion wait until then. Mark Soltman responded that DOH would be looking at filtration as part of the septic tank WAC development process, but that this may not transfer to discussion about positive filtration and ATUs.
- Kevin Barry stated that if positive filtration is going to be required for septic tanks, which are a more stable process, they should also be required for ATUs.
- Bill Peacock asked Laura White to describe the benefits and disadvantages of using positive filtration. Laura responded that studies she read hadn't concluded anything. Bill Peacock then asked if local health jurisdictions could be quickly surveyed to see what their experiences have been regarding this topic. Have they seen problems with the lack of positive filtration?

Gravelless Drainfields RS&G – Language Amendments

Mark Soltman summarized the thought processes that went into the development of the handout used to provide a logical sequence to providing answers to issues within this topic. The basis for the methodology in the handout is the process being used in the regulation development process for large onsite sewage systems.

Mark handed out letters DOH had received from Hancor and PSA, Inc. regarding this topic, as well as made available a revised RS&G noting proposed changes.

Topic 1: Amend the Gravelless Drainfield Recommended Standards and Guidance document (RS&G) to provide DOH review and approval of proprietary "multi-pipe" and "geocomposite" systems.

Motion:

Eric Knopf, seconded by Scott Jones, made a motion that Option B (**Add to the "recommended standards" portion of the RS&G document two additional types of gravelless drainfields: multi-pipe and geocomposites)** be adopted. The vote was six in favor, none opposed. The motion passed.

Topic 2: Amend the Gravelless Drainfield Recommended Standards and Guidance document (RS&G) to clarify and expand the requirements placed upon gravelless drainfield products for "Void Capacity/Storage Volume".

Mark Soltman indicated this suggestion had come from Infiltrator Systems, Inc. Blake Johnston explained their reasoning for this suggestion. Kevin Barry suggested a change is not needed.

Al Schnitkey from EZFlow informed the committee of the NSF process currently underway to start evaluating this. He agrees with the current language.

Scott Jones stated there is a concern that there must be sufficient storage to handle surges.

Motions:

Bill Peacock, seconded by Eric Knopf, made a motion Option A (**Status Quo/No Change)** be adopted. During the discussion, Eric Knopf indicated he was leaning toward Option B being a better choice. Kevin Barry indicated his opinion that storage volume just isn't that important. Scott Jones reminded the committee that gravel still serves as the benchmark. The vote was one in favor (Kevin Barry), five opposed. The motion failed.

Bill Peacock, seconded by Eric Knopf, made a motion Option E (**A modification of Option B. Clarify the performance criteria for void capacity without the requirement for 3rd party verification of void volume measured in an installed condition.)** be adopted. Steve Wecker asked who would make the determination of void volume. Mark Soltman responded that DOH would. The vote was five in favor, one opposed (Kevin Barry). The motion passed.

Topic 3: Restrictions on combining drainfield size reductions based on effluent quality with reductions allowed for some types of gravelless drainfields.

Motion:

Eric Knopf, seconded by Keith Grellner, made a motion Option B (**Add to the "recommended standards" portion of the RS&G document specific language prohibiting the combining of drainfield size reduction allowances)** be adopted. The vote was six in favor, none opposed). The motion passed.

Topic 4: Consider deleting Appendix A from the existing RS&G for gravelless drainfields.

Mark Soltman briefly described why this appendix had been initially placed in the latest version of the gravelless drainfield RS&G.

Motion:

Bill Peacock, seconded by John Stormon, made a motion Option B (**Strike the entirety of Appendix A from the existing RS&G for gravelless drainfields)** be adopted. Steve Wecker suggested that the design community finds it useful to have wording that explains the TRC's thinking, especially for significant decisions or changes. Bill Peacock stated that if DOH felt that historical comments would be useful, they could add such information. Bill Peacock amended the motion, with agreement from John Stormon, adding: "…unless DOH sees the need for historical information." The vote was six in favor, none opposed. The motion passed.

Topic 5: Update the RS&G for gravelless drainfields, providing a drainfield sizing reduction allowance for "gravel-substitute drainfields" to reflect the sizing allowances extended to E*Zflow* gravel-substitute products.

Mark explained the reasoning for this – to be consistent with the reasoning for all gravelless chamber products being extended to other chamber products.

Motion:

Eric Knopf, seconded by Bill Peacock, made a motion Option B (**Update the RS&G for gravelless drainfields by including "gravel-substitute drainfields" in the list of gravelless drainfield types that are allowed to reduce drainfield size, compared to gravel-filled drainfields)** be adopted. The vote was four in favor, none opposed, two abstentions (John Stormon, Scott Jones). The motion passed.

Topic 6: Modify the RS&G for gravelless drainfields, providing a drainfield sizing reduction allowance for "geocomposite drainfields," in response to a request received by DOH from Eljen Corporation for extending a drainfield size reduction allowance to their geocomposite drainfield product, the Eljen In-Drain.

Mark Soltman reviewed the history of DOH and TRC dealings with Eljen Corporation. Eljen's request was greater than the reductions than the 40% reduction allowed for chambers.

Rick Dawson reminded the committee that only three of the current TRC members were present at the meeting where this was initially discussed. Those present quickly summarized the discussions.

Motion:

Scott Jones, seconded by Bill Peacock, made a motion Option B (**Modify the RS&G for gravelless drainfields, providing a drainfield sizing reduction allowance for "geocomposite drainfields.")** be adopted. The vote was four in favor, none opposed, two abstentions (John Stormon, Eric Knopf). The motion passed.

Topic 7: Modify the RS&G for gravelless drainfields to establish a single criteria for all types of gravelless drainfields to be used when sizing drainfields.

Mark Soltman reviewed the issues behind this request; that the request had come from Infiltrator Systems, Inc. The proposal (option B in the Discussion Agenda), if adopted, would base the effective bottom area on the exterior (outside) dimensions of gravelless products rather than the open exposed area on the interior to the products.

Blake Johnson displayed drawings from several gravelless technologies and discussed differences between the width of a trench and exposed area. If the decision is to go with "open, exposed area", then we must do so for all technologies.

Al Schnitkey stated that 90% doesn't equal 100%, referring to the distance between the edge of the trench and the outside edge of the chamber. He continued that 80% is even less equal 100%, referring to the pad on chambers that is in contact with the infiltrative surface. Sizing to one constant like one manufacturer is suggesting is not the best way to make a decision. Just picking one variable and making it a constant tends to have other variables have greater effect. He suggested waiting for the NSF process to be completed before such a decision is made, since the various manufacturers, as well as regulators and others on the NSF committee, will be participating in those discussions. He recommended DOH become involved in that process.

Eric Knopf indicated that the committee wants to keep things simple if its possible.

Bill Peacock informed the TRC of what would be applied for stormwater – exposed area. For wastewater, biological contact area and then storage area should be applied – this differs with the product being discussed.

Scott Jones suggested that chambers were being penalized by not being given credit for a full trench width of three feet.

Motion:

Eric Knopf, seconded by Scott Jones, made a motion Option B (**Replace the existing sizing criteria (type-specific sizing criterion) with a single criterion to be applied to all types of gravelless drainfields)** be adopted. The vote was four in favor, none opposed, one abstention (John Stormon). (There was one less committee member present as Keith Grellner had to depart early but he was in agreement with and favored Option B.) The motion passed.

Kevin Barry adjourned the meeting at approximately 3:50 PM.

LIST OF MEETING MATERIALS

Field Assessment Threshold Values

- Field Assessment vs. Product Testing: The Statistical Differences – PowerPoint Slides by Dr. VanDerslice (17 slides)
- Critical Point Monitoring – Development of a monitoring guidance document (John Eliasson)
    - Onsite Sewage System Monitoring – draft RS&G
    - PowerPoint Slides (19 slides)

Aerobic Treatment Unit RS&G: Positive filtration

- "Positive Filtration", White, Laura
- "Effluent Quality from ATUs and Packed Bed Filters Receiving Domestic Wastewater Under Field Conditions", Converse, James
- "Field Performance of Aerobic Treatment Units in the Mid-Michigan Health District", Wallace, J. and Loudon, T.
- "Positive Filtration Discussion", copy of slide presentation made by Joe Bush, Norweco.
- Several letters from David Allan

Gravelless Drainfields RS&G – Language Amendments

- "Discussion Agenda for April 22, 2004", prepared by Mark Soltman to guide the discussion
- Memo to TRC Members from Larry Kirchner dated March 18, 2004
- Memo to Gravelless Drainfield Industry Members from Larry Kirchner dated March 26, 2004
- Letters to the Department from Hancor and PSA, Inc.
- Gravelless Drainfields RS&G (draft)
- Technical Papers:
    - "In-Ground Dispersal of Wastewater Effluent: The Science of Getting Water into the Ground", White, Kevin and West, Larry
    - "Wastewater Infiltration into Soil and the Effects of Infiltrative Surface Architecture", Siegrist, Robert, McCray, John, and Lowe, Kathryn
    - "A Model Comparison of Chamber and Conventional On-site Systems", Radcliffe, D., West, L., and Singer, J.
    - "Wastewater Infiltration Rate Behavior in Porous Media as Affected by Infiltrative Surface Architecture: Methods Development & Experimental Results", Diaz, A. and Siegrist, R.

Other:

- Handout from Mark Soltman – Memorandum notifying committee members, other interested parties, and local health jurisdictions of the Department's decision to suspend TRC activities for one year after the June 2004 meeting.
- E-mail from Mark Soltman to Tom Teal dated April 15, 2004.